

Listing of Claims:

1. (Currently Amended) An automatic detecting method for detecting protocol nonconformity, in Transmission Control Protocol/Internet Protocol (TCP/IP), occurring in a communication between transmitting and receiving terminals that make at least one transmitting and receiving control process in accordance with TCP/IP, in a case where at least one of: a communication apparatus does not perform its operation in accordance with specifications of the TCP/IP; an expected communication process is not performed in the TCP/IP due to false mounting; and an expected communication process does not operate in a new application because of a deficiency or defect in the TCP/IP, said method comprising:

receiving at a network interface a packet transmitted or received in the communication between said transmitting and receiving terminals to transfer the packet for data retention, if it is necessary to save the packet, and to transfer the packet for packet analysis, unless it is necessary to save the packet;

analyzing header information of the packet transferred from the receiving to transfer the header information and necessary payload information;

creating state information, which is TCP connection information regarding a state of transmitting or receiving the packet to correspond to a result of transmitting and receiving control in accordance with said communication protocol, based on the header information and the payload information transferred from the analyzing;

estimating normal information of a case where the transmitting and receiving control process is normally performed with the header information and the payload information received from the creating;

storing beforehand nonconformity information featuring nonconformity in the transmitting and receiving control process, the nonconformity information being any one of a conditional formula regarding the TCP connection information, a conditional formula regarding the header information of the packet, and a combination thereof; and

comparing the analysis result of the analyzing, the TCP connection information created by the creating, the normal information estimated by the estimating, and the nonconformity information stored by the storing to detect the transmitting and receiving control process where said nonconformity has occurred.

2. – 3. (Cancelled)

4. (Previously Presented) The automatic detecting method according to claim 1, wherein the step of creating further comprises updating said state information every time acquiring the packet, and the step of comparing further comprises comparing the latest state information updated at the step of creating and said nonconformity information.

5. (Previously Presented) The automatic detecting method according to claim 1, wherein the TCP connection information includes an evaluation value having at least one of a total number of transmitted packets, a total number of retransmitted packets, a total number of Selective ACKnowledgement (SACK) blocks, a minimum packet size, a throughput of a maximum retransmitted interval, and a round trip time up to receiving a response packet to the transmitted packet.

6. (Currently Amended) An automatic detecting apparatus for detecting protocol nonconformity, in Transmission Control Protocol/Internet Protocol (TCP/IP), occurring in a communication between transmitting and receiving terminals that make at least one transmitting and receiving control process in accordance with TCP/IP, in a case where at least one of: a communication apparatus does not perform its operation in accordance with specifications of the TCP/IP; an expected communication process is not performed in the TCP/IP due to false mounting; and an expected communication process does not operate in a new application because of a deficiency or defect in the TCP/IP, said apparatus comprising:

a packet receiving portion that receives at a network interface a packet transmitted or received in the communication between said transmitting and receiving terminals to transfer the packet for data retention, if it is necessary to save the packet, and to transfer the packet for packet analysis, unless it is necessary to save the packet;

a packet filter/analysis portion that analyzes header information of the packet transferred from the packet receiving portion to transfer the header information and necessary payload information;

a connection information calculating portion that creates state information, which is Transmission Control Protocol (TCP) connection information regarding a state of transmitting or receiving the packet to correspond to a result of a transmitting and receiving control in accordance with said communication protocol, based on the header information and the payload information transferred from the packet filter/analysis portion;

a normal information estimating portion that estimates normal information of a case where the transmitting and receiving control process is normally performed, with the header information and the payload information received from the connection information calculating portion;

a nonconformity information saving portion that stores beforehand nonconformity information featuring nonconformity in the transmitting and receiving control process, the nonconformity information being any one of a conditional formula regarding the TCP connection information, a conditional formula regarding the header information of the packet, and a combination thereof; and

a nonconformity comparison determining portion that compares the analysis result of the packet filter/analysis portion, the TCP connection information created by the connection information calculating portion, the normal information estimated by the normal information estimating portion, and the nonconformity information stored in the nonconformity information saving portion to detect the transmitting and receiving control process where said nonconformity has occurred.

7. – 8. (Cancelled)

9. (Previously Presented) The automatic detecting apparatus according to claim 6, wherein the TCP connection information includes an evaluation value having at least one of a total number of transmitted packets, a total number of retransmitted packets, a total number of Selective ACKnowledgement (SACK) blocks, a minimum packet size, a throughput of a maximum retransmitted interval, and a round trip time up to receiving a response packet to the transmitted packet.